

University of Groningen

## Smart Homes Infrastructures and Interactions (SHII 2009)

Aiello, Marco; Catarci, Tiziana; Mecella, Massimo

*Published in:*

2009 18TH IEEE INTERNATIONAL WORKSHOP ON ENABLING TECHNOLOGIES: INFRASTRUCTURES FOR COLLABORATIVE ENTERPRISES

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

2009

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Aiello, M., Catarci, T., & Mecella, M. (2009). Smart Homes Infrastructures and Interactions (SHII 2009). In *2009 18TH IEEE INTERNATIONAL WORKSHOP ON ENABLING TECHNOLOGIES: INFRASTRUCTURES FOR COLLABORATIVE ENTERPRISES* (pp. 234-235). (IEEE International Workshops on Enabling Technologies: Infrastructure for Collaborative Enterprises Proceedings). IEEE (The Institute of Electrical and Electronics Engineers).

### Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

# Smart Homes Infrastructures and Interactions (SHII 2009)

Marco Aiello

Distributed Systems Group

Bernoulli Institute for Mathematics and Computing Science

University of Groningen, The Netherlands

m.aiello@rug.nl

Tiziana Catarci and Massimo Mecella

Dipartimento di Informatica e Sistemistica ANTONIO RUBERTI

SAPIENZA Università di Roma, Italy

catarci@dis.uniroma1.it, mecella@dis.uniroma1.it

The vision of smart homes for all is taking shape as information technology advances. Our homes are starting to be aware of their state and can react upon events and user's needs, thanks to the readily availability of inter-networked, low power consuming and cheap embedded sensors. Actuators complete the picture, by allowing the home to change its state proactively and interact with the human user.

Embedded devices such as sensors and actuators are specialized computers used in larger systems or machines to control equipments such as automobiles, home appliances, communication, control and office machines. Such pervasivity is particularly evident in immersive realities, i.e., scenarios in which invisible embedded systems need to continuously interact with human users, in order to provide continuous sensed information and to react to service requests from the users themselves. However, having embedded devices does not automatically entail having smart homes. A number of issues need to be addressed. For instance, how to enable independent set of devices to cooperate with each other to build one unique home infrastructure, or how should home user-interaction take place. The *Smart Homes Infrastructures and Interactions (SHII 2009)* workshop is concerned with these two aspects, that is, computer infrastructures for the smart home and how to interact with the homes.

The workshop was held at the University of Groningen on June 30, 2009, it was in its first edition and it was part of the 18th IEEE International Workshop on Enabling Technologies: Infrastructure for Collaborative Enterprises (WETICE 2009). An international programme committee of academic and industrial experts in the fields of pervasive computing, networking, service-oriented computing, human-computer interaction, and healthcare ensured the scientific quality of the event. The chairs received five papers from Europe and North America, three of which were accepted for presentation. Each paper was reviewed by at least three members of the programme committee. The accepted papers nicely cover the main aspects of the workshop: human-home interaction via brain-computer

interfaces, home middleware, and the healthcare perspective on the technology.

*Virtual Smart Home Controlled By Thoughts* by C. Holzner, C. Guger, C. Grnegress, G. Edlinger, and M. Slater shows the possibilities of interacting with a home via a brain computer interface. Literally one can control a home by thoughts. The study presents a prototype system with a real brain interface connected to a simulation of a home environment. The testing with twelve actual users shows that indeed the road to brain interfaces for home interaction is viable. Such a system would be of great help not only for the generic home user, but especially for those that have some physical but not cognitive limitation.

A solution to the problem of interoperation of heterogeneous autonomous devices is the object of *Pervasive Web Services over P2P Network* by F. Milagro, P. Antolin, J. Fernandes, W. Zhang, K.M. Hansen and P. Kool. The proposal is based on the use of XML based protocols known as Web services. The idea is to consider devices as services which talk a common language and to build on top of them a P2P overlay providing mechanisms for service registration, discovery and consumption. The proposal, which is part of the Hydra middleware project, is evaluated against a number of parameters.

The results from a large study in the North of the Netherlands with actual end-users is reported in *Is Telecare Feasible? Lessons from an in-depth case study* by J.C. Wortmann, A. Boonstra, M. Broekhuis, J. van Meurs, M. van Offenbeek, W. Westerman, and J. Wijngaard. The core of the system is based on the enabling of video interactions between people with care needs at home and caregivers. The study is concerned both with the technological aspects of implementing the system, named Koala, and with its organizational and economical aspects.

The three papers shed light on the feasibility of smart homes as well as offer insights on concrete case studies. Smart homes for all will need great research efforts to be reliably, cheaply and easily built, however the initial results

and prototypes described indicate that it is fully worthwhile to continue investigating the area.

We thank the programme committee for their work, the authors of the submitted papers for their interest, and the local

organization chairs Elie el Khoury and Mahir Can Doğanay for the logistic support. Finally, we acknowledge the support and endorsement of the Smart Homes for All (SM4All) consortium.<sup>1</sup>

<sup>1</sup>EU STREP project FP7-224332 <http://www.sm4all-project.eu>.